

**Work Order ID 70677**

Monday, June 13, 2011 1:11:15 PM



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Item ID:	D6101-005	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Saddle Billet					
Start Date:	6/13/2011	Start Qty:	10.00			
Required Date:	6/24/2011	Req'd Qty:	10.00			
Reference:						

Approvals:	Process Plan:	<u>CL</u>	Date:	<u>11/06/13</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D6101	Rev B								

100  
 PURCHASING 0.00  
Purchasing  
Purchasing  
Memo  
Issue P/O: 14273  
a) Description: Aluminum billet  
b) 5.00" x 8.250" x 2.50" thick  
c) Tolerance on all dimensions are +0.030"/-0.000"  
d) Grain direction along 5.00" length  
e) Material: 7075-T7351 (QQ-A-250/12)  
f) Material certification required

CL 11/06/13 (10)

110  
 Receive & Inspect for Damage & Mat'l Certs 0.00  
Packaging  
Packaging  
Memo  
Ensure material certification is attached

CL 6/17/13 (10)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

**Work Order ID 70677**

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Monday, June 13, 2011 1:11:15 PM

Item ID: D6101-005

Accept



Setup Start



Revision ID:

Stop



Item Name: Saddle Billet

Start Date: 6/13/2011 Start Qty: 10.00



Cust Item ID:

Required Date: 6/24/2011 Req'd Qty: 10.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

120

QC6- Inspect dimensions to drawing

0.00



QC

Memo

0.00

Quality Control

Ensure Material certification comply to Dwg D6101

11/7/19

10

130

Identify as per dwg & Stock Location: CWE 0.00

Packaging

Memo

0.00

Packaging

11/7/19

10

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

11/7/20  
MF  
11-07-19

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

Monday, June 13, 2011 1:11:12 PM

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Work Order ID: 70677

Parent Item: D6101-005

Parent Item Name: Saddle Billet





Start Date: 6/13/2011

Required Date: 6/24/2011

Start Qty: 10.00

Required Qty: 10.00

Comments: IPP A: ☐01.05.04☐New Issue☐EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6101-005P  7075-T7351 8.25X5.0X2.5		Purchased	No			110	Each	0.0000	1 	10		6/17/11 (10)	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

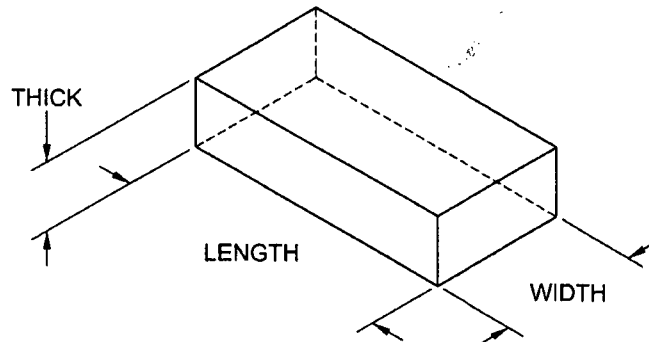
Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# SPECIFICATION CONTROL DRAWING



PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, LENGTH x WIDTH x THICK (+0.030/-0.000), AND GRAIN DIRECTION AS SHOWN.

TOLERANCES ON ALL DIMENSIONS ARE +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES.

**B** ACCEPTABLE SPECIFICATIONS FOR 7075-T7351 ALUMINUM ARE AMS-QQ-A-250/12, QQ-A-250/12, OR ASTM B209

Part No.	Alloy	Length	Width	Thick	Grain Direction
D6101-001	7075-T7351 (QQ-A-250/12)	6.000	6.250	2.000	Along 6.000 Length
D6101-003	7075-T7351 (QQ-A-250/12)	7.875	6.250	2.000	Along 7.875 Length
D6101-005	7075-T7351 (QQ-A-250/12)	5.000	8.250	2.500	Along 5.000 Length
D6101-007	7075-T7351 (QQ-A-250/12)	7.750	8.250	2.500	Along 7.750 Length
D6101-009	7075-T7351 (QQ-A-250/12)	8.700	8.250	2.500	Along 8.700 Length
D6101-011	7075-T7351 (QQ-A-250/12)	9.700	8.250	2.500	Along 9.700 Length
D6101-013	7075-T7351 (QQ-A-250/12)	10.100	8.250	2.500	Along 10.10 Length
D6101-015	7075-T7351 (QQ-A-250/12)	9.450	6.250	2.500	Along 9.450 Length
D6101-017	7075-T7351 (QQ-A-250/12)	6.350	6.250	2.250	Along 6.350 Length

**RELEASED**  
09/07/15/W

*CLULOC13*  
*W10.70677*

B	ADDED D6101-015/-017, ADD ASTM B209	RF	09.04.23
A	NEW ISSUE	CP	01.03.30
REV.	DESCRIPTION	BY	DATE
DESIGN	CP	<b>DART AEROSPACE LTD</b> HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. B
MFG. APPR.	<i>[Signature]</i>	D6101	SHEET 1 OF 1
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	SADDLE BILLET, 7075	NTS
DATE	09.04.23	<small>COPYRIGHT © 2001 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small>	

**Castle Metals®**

A. M. Castle &amp; Co.

**PACKING SLIP**

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Pack Slip No:701074

<b>Ship From:</b> A. M. Castle & Co. Chicago 3400 North Wolf Road Franklin Park, IL 60131		<b>Sold To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		<b>Ship To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA		<b>Deliver To:</b> DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
<b>Date Shipped</b> 04-JUL-2011	<b>F.O.B.</b> ORIGIN	<b>Freight Terms</b> Prepaid		<b>Carrier</b> CASTLE_NETWORK K	<b>BOL No</b> 705038	<b>Delivery No</b> 83590332	

<b>Shipment Details</b>	<b>Final Destination Branch -</b>
-------------------------	-----------------------------------

<b>Order No</b> 1527863	<b>Line No</b> 1	<b>Item No</b> 752241.MO	<b>Description</b> 2.5000.PL.7075.T7351.ALUMINUM.USH.48.5000.144.5000 CUT 2SIDED TO 8.25 IN ( + .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) X 5 IN ( + .0310/- .0000 IN (GRAIN TO RUN ALONG 5")) - ALUMINUM PLATE SAW SPECIFICATIONS: QQ-A-250/12				
<b>Purchase Order No</b> 14273		<b>Part Number</b> YOUR ITEM NUMBER: D6101-0053		<b>Ordered Qty</b> 10 PCS		<b>Invoice Qty</b> 10 PCS	
<b>Details</b>							
<b>Mill</b>	<b>Heat Number</b> 485646A4	<b>Mech ID</b>	<b>PCS</b> 103	<b>Width (IN)</b>	<b>Length (IN)</b>	<b>Shipped Qty (LBS)</b> 106.66	

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.	
We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.	
Reviewed by Authorized Castle Metals Representative:	Date:



SHIP TO:  
 CASTLE % CASTLE AEROSPACE  
 3050 SOUTH HYDRAULIC  
 WICHITA, KS 67216

**KAISER  
 ALUMINUM**

Trentwood Works - Spokane, WA 99215  
 Phone: (800) 367-2586

## CERTIFIED TEST REPORT

SOLD TO:  
 CAS AERO%AM CASTLE METALS  
 ATTN: BOB OHR %ACCTS PAYABLES  
 3400 NORTH WOLF ROAD  
 FRANKLIN PARK, IL 60131

Serial Number  
 4172642

CUSTOMER PO NUMBER: 15132		WORK PACKAGE:	CUSTOMER PART NUMBER: 6879 AMC A97075-60		SHIP RUN/LOAD ID: 101636/5	GOV'T CONTRACT NUMBER:
KAISER ORDER NO: 1087324	LINE ITEM: 1	SHIP DATE: 29-SEP-2009	ALLOY: 7075	CLAD: BARE	TEMPER: T7351	PRODUCT DESCRIPTION: Sawed Plate
WEIGHT SHIPPED: 44926 LB	QUANTITY: 25 PCS EST.	B/L NUMBER: 2024216	GAUGE: 2.5000 IN		DIAMETER/WIDTH: 48.500 IN	LENGTH: 144.500 IN

### Certified Specifications

AMS 4078/RevG  
 ASTM B 209/Rev07  
 BSS 7055/RevA  
 DPS 4.713/RevAH  
 GSS16100/RevG/Amd1

AMS-QQ-A-250/12  
 ASTM B 594/Rev06  
 CMMP 025/RevS  
 EAC MS1011/RevE  
 MMS 159/RevN

AMS-STD-2154  
 BAC 5439/RevH  
 CSTI 006/RevC  
 GAMPS 9101/RevB  
 PS 21211/RevK

Test Code: 4297

### Test Results

Lot: 479610AB Cast 268

Drop 21

Ingot 2

(ASTM E8/B557)  
 (EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.7 : 71.3 (487 : 492)	59.1 : 59.5 (407 : 410)	11.2 : 11.6

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	41.6 Min	42.0 Max
(MS/M) :	24.1 Min	24.4 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.6	0.03	2.4	0.20	5.8	0.04	0.01	0.01	TOT 0.05

**KAISER  
ALUMINUM****CERTIFIED TEST REPORT**

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

Serial Number  
4172642

Lot: 479709A8 Cast 268 Drop 10 Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.5 : 71.9 (493 : 496)	59.8 : 60.2 (412 : 415)	10.7 : 10.8

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.8 Min	41.3 Max
(MS/M) :	23.7 Min	24.0 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.20	1.5	0.04	2.4	0.20	5.6	0.03	0.01	0.01	TOT 0.05

Lot: 479742A9 Cast 271 Drop 09 Ingot 4

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	69.4 : 74.8 (479 : 516)	56.4 : 63.9 (389 : 441)	11.1 : 11.7

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	38.3 Min	40.9 Max
(MS/M) :	22.2 Min	23.7 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.20	1.5	0.04	2.5	0.19	5.6	0.03	0.01	0.02	TOT 0.05

**KAISER  
ALUMINUM**

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

**CERTIFIED TEST REPORT**

Serial Number  
4172642

Lot: 485604A3 Cast 271

Drop 23

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.8 : 72.0 (495 : 496)	59.9 : 60.4 (413 : 416)	10.6 : 10.9

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	41.3 Min	41.3 Max
(MS/M) :	24.0 Min	24.0 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.11	0.21	1.5	0.04	2.5	0.20	5.6	0.04	0.01	0.01	TOT 0.05

Lot: 485622A5 Cast 271

Drop 19

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.9 : 71.0 (489 : 490)	59.1 : 59.5 (407 : 410)	11.3 : 11.3

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	40.6 Min	41.9 Max
(MS/M) :	23.5 Min	24.3 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.10	0.21	1.5	0.04	2.4	0.19	5.5	0.04	0.01	0.01	TOT 0.05

**KAISER  
ALUMINUM****CERTIFIED TEST REPORT**

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

Serial Number  
4172642

Lot: 485628A6 Cast 271

Drop 23

Ingot 3

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	71.2 : 71.8 (491 : 495)	59.4 : 60.1 (410 : 414)	10.1 : 11.0

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	41.3 Min	41.4 Max
(MS/M) :	24.0 Min	24.0 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.11	0.21	1.5	0.04	2.5	0.20	5.6	0.04	0.01	0.01	TOT 0.05

Lot: 485646A4 Cast 271

Drop 29

Ingot 2

(ASTM E8/B557)

(EN 2002-1)

Tensile:	Temper	Dir / # Tests	Ultimate KSI (MPA)	Yield KSI (MPA)	Elongation %
	T7351	LT / 2 (Min:Max)	70.9 : 74.0 (489 : 510)	59.4 : 63.4 (410 : 437)	11.3 : 11.7

(ASTM E1004)

(EN 2004-1)

Conductivity %IACS :	39.1 Min	41.6 Max
(MS/M) :	22.7 Min	24.1 Max

(ASTM E1251)

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER
Actual	0.09	0.18	1.4	0.04	2.4	0.20	5.7	0.03	0.01	0.01	TOT 0.05

**ALLOY LIMITS**

Chemistry:	SI	FE	CU	MN	MG	CR	ZN	TI	V	ZR	OTHER	MAX
7075 MIN	0.00	0.00	1.2	0.00	2.1	0.18	5.1	0.00	0.00	0.00	EACH	0.05
MAX	0.40	0.50	2.0	0.30	2.9	0.28	6.1	0.20	0.05	0.05	TOT	0.15

Aluminum Remainder

# KAISER ALUMINUM

## CERTIFIED TEST REPORT

Trentwood Works - Spokane, WA 99215  
Phone: (800) 367-2586

Serial Number  
4172642

### TEST NOTES

7075-T7351 plate 3.501-4.000" thick, if  
ultrasonically inspected, meets requirements of CMMP025 per  
SDR CMMP025-KaiserT-3. 7075-T7351 plate 4.001-5.000" thick,  
if ultrasonically inspected, meets requirements of CMMP025  
per  
SDR CMMP025-KaiserT-2.

Metal represented by this test report was immersion  
ultrasonically tested from one side and meets the Class A  
and Class B requirements of all specifications referenced  
on this test report.

### CERTIFICATION

KAISER ALUMINUM FABRICATED PRODUCTS, LLC (KAISER) HEREBY CERTIFIES THAT METAL SHIPPED UNDER THIS ORDER WAS MELTED IN THE UNITED STATES OF AMERICA OR A QUALIFYING COUNTRY PER DFARS 225.872-1 (a), WAS MANUFACTURED IN THE UNITED STATES OF AMERICA, AND MEETS THE REQUIREMENTS OF DFARS 252.225 FOR DOMESTIC CONTENT. THIS MATERIAL HAS BEEN INSPECTED, TESTED, AND FOUND IN CONFORMANCE WITH THE REQUIREMENTS OF THE APPLICABLE SPECIFICATIONS AS INDICATED HEREIN. ALL METAL WHICH IS SOLUTION HEAT TREATED COMPLIES WITH AMS 2772. ANY WARRANTY IS LIMITED TO THAT SHOWN ON KAISER'S STANDARD GENERAL TERMS AND CONDITIONS OF SALE. TEST REPORTS SHALL NOT BE REPRODUCED EXCEPT IN FULL, WITHOUT THE WRITTEN APPROVAL OF KAISER ALUMINUM FABRICATED PRODUCTS, LLC LABORATORY. THE RECORDING OF FALSE, FICTITIOUS, OR FRAUDULENT STATEMENTS OR ENTRIES ON THE CERTIFICATE MAY BE PUNISHED AS A FELONY UNDER FEDERAL LAW. ISO-9001:2000 CERTIFIED.

**BILL POYNOR, LABORATORIES SUPERVISOR**

